UNITED STATES DEPARTMENT OF AGRICULTURE
OFFICE OF PUBLIC ROADS AND RURAL ENGINEERING
WASHINGTON, D. C.

FIELD LETTER FOR JANUARY No. 12

February 1, 1916.

DIVISION OF CONSTRUCTION
Vernon M. Peirce, Chief.

Projects:

General

V. M. Peirce, Chief, was in New York January 19-22, inclusive, attending the meeting of the special committee of the American Society of Civil Engineers on materials for road construction and on standards for their test. He also attended the meeting of the Committee on Specifications for Concrete Roads and Pavements of the American Concrete Institute, of which he is a member. Incidentally, he inspected the experimental work done by the Office in 1911 at Jamaica, N. Y.

J. W. Janssen, H.E., exhibited road models at the Volusia County Fair, Deland, Florida, January 25-29.

A. S. Hathaway, J.H.E., has been assigned temporarily to assist in the Division of Economics; A. L. Hooper, J.H.E., to the Division of Drainage; and F. R. Lyons, J.H.E., to the Division of Irrigation.

R. H. Harrison, J.H.E., accompanied a party making a log of the Meridian Highway in Texas on January 3. This is a proposed highway from Laredo, Texas, to Winnipeg, Manitoba. Owing to bad road conditions the trip was abandoned at Pflugerville, Texas, at which point a meeting was held in the interest of the highway.

Object-Lesson Road

G. D. Marshall, S.R.C., was assigned January 29 to supervise the construction of a sand-clay object-lesson road in St. Francis County, Missouri.

Advice and Inspection

J. T. Voshell, S.H.E., gave a lecture on bituminous materials and bituminous macadam construction at the Maryland Agricultural College, January 14.

L. I. Hewes, S.H.E., left Washington January 10 to give lectures at St. Louis County, Mo., in regard to bond issues, and to lecture on various subjects at the University of West Virginia, Purdue University, University of Illinois, and the University of Pittsburgh. He will return to the Office February 2.

C. H. Moorefield, S.H.E., was assigned January 15 to inspect brick and other types of road construction at various points in Florida. He returned to the Office January 31.

J. C. Wonders, S.H.E., was assigned January 4 to Cooper County, Missouri, to make a survey and plan a system of roads to be improved in that county. Mr. Wonders also made a short trip to Warrensburg, Mo., January 18, for the purpose of securing full information relative to a proposed survey in Johnson County.

E. O. Hathaway, S.H.E., was assigned January 20 to give advice and aid in t the construction of a highway from Pass Christian to Biloxi, Mississippi. Mr. Wonders made a preliminary survey of this highway in 1914.

C. H. Sweetser, S.H.E., was assigned January 17 to assist the State Road Bureau of West Virginia, until the work on the Iowa Post Road is resumed. A short advice and inspection assignment in Greenbrier County, West Virginia, will also be covered by him.

E. S. Alderman, J.H.E., was assigned January 4 to cooperate with the County Engineer in planning and building a system of roads in Palm Beach County, Florida. A bond issue of $800,000 for the construction of these roads has been voted.

Field Experiments

Work on the experimental gravel road from near Gum Spring to Mt. Vernon, Virginia, has been discontinued and will be resumed as soon as weather conditions will warrant.

DIVISION OF MAINTENANCE
E. W. James, Chief.

Projects:

General

On January 10, J. H. Eldridge, S.R.C., was transferred from the Division of Construction and assigned to maintenance work on the experimental roads in Montgomery County, Maryland, and Alexandria County, Virginia, with headquarters in Washington, D. C.

Advice, Inspection, and Lectures

W. L. Spoon, S.H.E., inspected the road from Southern Pines by way of Lillington to Raleigh; from Southern Pines by way of Sanford to Raleigh, and the road from Southern Pines, by way of Sanford to Chapel Hill and thence to Durham. All of these are possible routes for a more direct through road from Southern Pines to Durham. Mr. Spoon reports that all of these will probably be completed as top-soil or gravel roads by the end of the present season.

On January 6, Mr. Spoon visited Rock Hill and York County, S. C., to advise with the County Engineer concerning the improvement of drainage and surface maintenance of sand-clay roads.

On January 19 and 20, Mr. Spoon visited Whitmire, S. C., at the request of Commissioner E. J. Watson and relocated the road at Tiger River Hill between Whitmire and Union.

D. H. Winslow, S.R.C., attended a short course in Highway Engineering at the Maryland Agricultural College, College Park, Md., and on January 13 gave to two illustrated lectures.

E. W. James, Chief, left Washington January 16 with C. H. Moorefield, S.H.E., to complete the inspection of the Washington-Atlanta Highway between Fayetteville, N. C., and Columbia, S. C. The inspection consumed two days and the road was found to be in good condition to Raeford and in excellent condition from Raeford to Columbia, with the exception of that part of the road in Marlboro County, S. C., and occasional short sections. Mr. Moorefield took this opportunity to secure data on those conditions of grade which induce the erosion of side ditches.

On January 19, Mr. James attended a meeting of the Legislative Delegation of Spartanburg County, S. C., at the State Capitol in Columbia, with reference to the improvement of the roads of Spartanburg County.

State and County Studies

S. L. Taylor, J.H.E., visited Mecklenburg County, N. C., December 26-28; on December 29 to January 3, he was in Spartanburg County, S. C.; Charleston County, S. C., from January 4 to 11; Chatham County, Georgia, January 12-20; Duval County, Florida, January 21-25; and on January 26 was ordered to Hillsboro County, Florida. He is studying the practical details of road maintenance as practiced in the various counties and reporting on the same. It is intended to continue such studies in Montgomery, Dallas, and Mobile Counties, Alabama; Hines and Lauderdale Counties, Miss., and in Calcasieu and Caddo Parishes, La.

Washington-Atlanta Highway

Inspection of the Washington-Atlanta Highway was completed January 18 and report of the inspection is finished. The road throughout its entire length is reported to date by the engineers in charge of the sections to be in good condition everywhere. So far, no break has occurred in the road making it necessary to use chains on the cars, although such condition was reached December 23 last season. Marked improvement has been made by the construction of bridges and culverts and the amount of new construction will almost equal, if not exceed, that of the preceding year.

The demand for maps is increasing constantly and a recent article in the New York Tribune from a contributor representing the automobile interests, designated the road as the "best approach to the south, east of the Appalachians."

Complete cost data on the operation of the three automobiles used by the engineers in charge of sections on the Highway, have been compiled and can be had by members of the field force who are interested.

Field Experiments

Mt. Vernon Avenue Road, Alexandria Co., Va.

This part of the experimental work of the Office promises to be of much interest. The sandstone section is developing unexpected weakness and temporary seal-coat of a medium suitable for use at this season has been planned for immediate application.

Ohio Post Road.

Arrangements are about completed for securing data relative to the maintenance of the Ohio Post Road, and an additional 0.89 mile from Jacksontown to Hebron. This data will be in similar form to that secured from Calcasieu Parish, La., and Maine.

New Projects

Plans are being made for cooperative work with a number of counties having an improved system of roads and suitable accounting systems, in securing exact maintenance costs. It is hoped that a sufficient number of counties will cooperate to secure a large and valuable amount of data comparable to that now being secured on the field experimental roads under immediate supervision by this Office. This information will serve to check the results of the experimental road studies and should provide a very substantial increase to the meagre information of this kind now available.

DIVISION OF NATIONAL PARK AND FOREST ROADS
T. Warren Allen, Chief.

Projects:

T. Warren Allen, Chief, left Washington, D. C., on January 23, for an extended inspection trip throughout the various Forest Service Districts. He will also give addresses before meetings arranged by Directors of Extension at a number of the Agricultural Colleges in the West. Mr. Allen expects to return to Washington some time in June.

National Forest Roads

District 2. A. E. Palen, H.E., in charge. Mr. Palen failed to make a report on his work for this month. On January 7, he attended a Farmers' Congress at Ft. Collins, and gave an address before the Ft. Collins Commercial Club. A camp was established, and survey work begun on the Sedalia-Decker Springs Road.

District 3. O. N. Powell, H.E., in charge. The survey party on the Tucson-Mt. Lemon road was greatly delayed by rain and snow. The country is extremely rough in places, and they have been able to make only about one-half mile a week. Mr. Powell delivered a lecture on road maintenance and construction at the Farmers' Convention at State College, Las Cruces, New Mexico, on January 5.

District 4. C. H. Kendall, S.H.E., in charge. Mr. Kendall's report has just been received and will be added at the end of this letter.

District 5. C. C. Morris, H.E., in charge. Mr. Morris failed to make a report on his work for this month. His work during January appears to have been entirely on planimeter work on the Trinity River Road.

District 6. B. J. Finch, S.H.E., in charge. Mr. Finch failed to make a report on his work for this month. He has also made no report on Skamania County work. From daily report cards, it appears that he was at work in the Portland, Oregon, office all the month, except for an inspection trip to the Skamania County road. Plans are being prepared for the Mt. Hood Loop Road by Jas. T. Schuyler, S.H.E.

DIVISION OF ROAD MATERIAL TESTS AND RESEARCH
Prévost Hubbard, Chief.

Projects:

Administration

During the last week of the month Mr. Hubbard began his second course of lectures at Columbia University, and will return to the Office about February 9.

Routine Tests and Analyses

During January, 9 samples of bituminous material and 60 samples of rock, sand, gravel, etc., were examined. 55 samples were classified in the Microscopic Laboratory.

Research Upon the Properties of Dust Preventives and Road Binders

A continuation of the investigation on the relative binding power of bituminous materials with different rocks is now under way. Some interesting experiments have also been undertaken during the month for the purpose of developing a method of utilizing bituminous materials in mixture with sand-clay or topsoils. The results of this work to date have been most encouraging from a laboratory standpoint, and it is probable that some field experiments will be inaugurated this spring.

Non-Bituminous Road Material Investigation

The laboratory is at present investigating the character of the fine material in topsoils or gravels, which has customarily been referred to as clay. The purpose of the work now under way has in mind the more accurate separation and determination of the actual clay content of the above materials. There is also under way a study of the relation between the mechanical analysis of sand and its tensile strength in mortars, and also a comparison of the toughness of cement mortars with the toughness of the constituent materials of the mortars.

Standardization of Methods of Testing

The Chemical Laboratory has made a few experiments to determine the effect of the method of extraction upon the bitumen recovered from bituminous aggregates, and also has under way a study of the effect of variables upon the results obtained in the float test. In the Physical Laboratory an effort is being made to standardize the abrasion test for gravel. Two proposed methods for determining the specific gravity of non-bituminous road materials are also under

investigation in comparison with the present method used by the Office. Work is also being continued on the standardization of a method for the determination of the weight per cubic foot of concrete sand.

Concrete Investigations

In the Concrete Laboratory at Arlington the large reinforced concrete slab (16 ft. span, 32 ft. wide, 6 inches effective depth, 0.75 per cent of reinforcing) was tested to destruction during the early part of the month in the presence of delegates from the Pan-American Congress. The ultimate load was 40,000 pounds.

The slab tests are being continued and two specimens have been molded to be tested at the age of 28 days on the 200,000 pound machine. These slabs are 12 ft. wide and of 6 ft. span. It is proposed to test one of these every two weeks until the series is completed.

Active operations have been begun on the construction of a new building for conducting soil pressure tests, and a specially designed apparatus for measuring soil pressures is now completed.

The measurements of flow of concrete are being continued and have been extended to include plain beams.

DIVISION OF RURAL ENGINEERING
E. B. McCormick, Chief.

Projects:

Domestic Water Supply and Sewage Disposal

The concrete work on the model sewage disposal plant at Bethesda, Md., has been completed, a large portion of the distribution field has been staked off and some of the trench work started.

G. M. Warren, D.E., is still on a tour of western "short courses," lecturing on water supply and sewage disposal.

Farm Structures

Work on the model of a farmstead, started last month, is progressing, though it has been delayed.

Working drawings for a five-room southern farmhouse are practically completed and should be ready for distribution some time during the month.

The working drawings for a series of pens for use by the Bureau of Animal Industry in experiments in individual hog feeding have been completed and estimates for their erection will be asked for within a few days.

Wallace Ashby, B.A., is still visiting Reclamation Projects in the West, studying the hog raising industry and the equipment necessary thereto. He is expected to finish about March 1. The data secured will be used in the preparation of drawings for buildings and equipment to be published in a bulletin on the subject.

A. D. Morehouse, D.E., has been engaged in the compilation of data relating to the various activities of the Division, and is attending to the very considerable technical correspondence which comes to this Division. He has also been engaged on the plans for a water supply and sewage system to be installed on a farm near Leonardstown, Md.

The Division has on hand considerable work for other bureaus of the Department, including the drawings for creameries, barns, and laboratory apparatus for the Dairy Division.

Field Experiments

The experimental fire extinguisher for threshing machines, designed for the Bureau of Chemistry, has been completed and will be tested in the near future.

Elmer Johnson, A.M.E., has returned from his leave and has made the final runs on the Rockville Pike, Rockville-Potomac Road, and the Arlington-Alexandria Road.

The Office force has been engaged on the two Rockville roads.

J. Reginald Boyd has been engaged as Student Assistant on the planimeter corps.

DIVISION OF ROAD ECONOMICS
J. E. Pennybacker, Chief.

Projects:

Statistical Investigations

Information in regard to statistics on road mileage, revenues, and expenditures, is complete for about 2,700 counties. The only state from which no information has been obtained is Pennsylvania, and a representative of this Office will be sent there during the month of February for the purpose of collecting these statistics. The Construction Division of this Office will cooperate with the Division of Economics by having its men who have assignments in a number of the southern states, collect information. Collaborators and state highway officials in the various states have been requested to write introductory chapters for the statistics relating to their respective states.

Statistics are being collected on automobile registrations and revenues for 1915 and reports have been received to date from 38 states. The collection of data for revising and bringing up to date Circular No. 52 on state highway expenditures has been begun.

Experimental Convict Camp

The experimental convict camp, constructed and equipped in cooperation with the commissioners of Fulton County, Georgia, was put in operation early in January. Forty-one honor convicts are now employed there on the work of grading the Powers-Ferry Road. At this time the plans and equipment and the system of management seem to be entirely satisfactory. R. F. Eastham, H.E., is in charge of the camp and the road work, and is assisted by Mack Galbreath, J.H.E.

Bulletin on Convict Labor

The preparation of the convict labor bulletin, which has been interrupted by the work on the experimental camp, is now being continued and it is hoped that it will be ready for publication late in the spring.

Road Management Studies

No new studies were made during the month of January, but, in all, 49 counties and towns have been studied and 30 reports have been written up. It is intended that 100 counties and towns shall be studied, and this information will be compiled in bulletin form.

Road Material Freight Rates

So far 50 out of the 78 railroads written to have supplied freight rates on road building materials.

Lectures and Road Models

The models which were on display at Worcester, Massachusetts, December 14-17, were shipped on December 18 to Storrs, Connecticut, for exhibit at Connecticut Agricultural College in connection with instruction work. This exhibit will be at Storrs indefinitely. The Office had an exhibit of road models on display at the Volusia County Fair Association, Deland, Florida, January 25-29.

L. E. Boykin, A.R.E., was assigned to exhibit road models at the Automobile Show, Ft. Wayne, Indiana, January 10-15. Mr. Boykin also delivered an address in Ft. Wayne on January 13.

J. E. Pennybacker, Chief, delivered a lecture on January 19 before the Virginia Road Builders' Association at Richmond, Virginia. J. J. Tobin, A.R.E., was assigned to exhibit models at the meeting of this Association, January 17-19. Mr. Tobin also delivered the following lectures: At College Park, Maryland, before the Maryland Agricultural College, January 10 to 13; at Bloomsbury, New Jersey, January 26, on "The Construction and Maintenance of Earth Roads;" and at New London, Connecticut, at farmers' meeting, on January 27.

Economic Studies of Post Roads

W. E. Rosengarten, R.E., is in the Office engaged in writing up reports of economic studies of the post roads in Alabama, Texas, and Mississippi.

State Highway Department Studies

During the month J. D. Fauntleroy, S.H.E., has continued the investigation of all available information with a view to completing the reports on the state management of highways in New York, Virginia, New Hampshire, Massachusetts, Maine, and Vermont. The information for Virginia, New York, and New Hampshire is about complete and these reports will be finished up in the near future.

County Economic Studies

County economic studies are all completed except the final study of Manatee County, Florida, and it is expected that this information will be ready for publication by the first of March.

County and Town Accounting System

Work is progressing on the gathering of material and data to be used in designing a general plan of accounting for counties and towns which will show the cost of road construction and maintenance.

DIVISION OF IRRIGATION INVESTIGATIONS

Samuel Fortier, Chief.

Projects:

Administration

The photographic files of the division have just been transferred from the Division of Publications to the photographic division of this Office. Before being incorporated as a part of the property of the Office the negatives are being worked over and many of them destroyed as obsolete. As soon as the examination of the Washington files has been completed it is probable that the negative files in the various field offices will be called in, in order that the entire lot of pictures on irrigation subjects may be thoroughly worked over and catalogued. A similar examination of the lantern slides will also be undertaken.

Carl Rohwer, who has been assisting in the work at Fort Collins for some months past under commission as Cooperative Agent, has been given a permanent appointment as Assistant Irrigation Engineer from the Civil Service Register established as a result of the examination held last September. Mr. Rohwer stood second on the list of eligibles, and was the first eligible to receive appointment. It is expected that several other appointments will be made before the opening of the spring work.

S. H. Beckett, I.E., attended an irrigation conference, called by the University of Arizona, at Tucson, January 14 and 14, as a representative of the University of California. He spoke at the conference on cooperative duty of water investigations in California.

G. S. Knapp, Agent, who has been in charge of the cooperative work with the Kansas Experiment Station at its Garden City substation for the past two years, has been placed in temporary charge of the substation as a result of the transfer to Manhattan of Former Superintendent Sewell.

Utilization of Water

M. B. Williams is completing a manuscript for a farmers' bulletin on Spray Irrigation, which it is hoped to publish during the spring. This will deal mainly with the good and bad features of the various spray systems used in irrigation in the eastern states, but will also deal with the possibilities in this type of irrigation in the west. The bulletin will be followed by one on surface methods of irrigation adapted to eastern conditions, sub-irrigation having been fully discussed in F. W. Stanley's report on Irrigation in Florida.

A progress report covering the work carried on during the season of 1915 in cooperation with the Oregon Experiment Station and the State Engineer, has been submitted by Prof. W. L. Powers, who had immediate supervision of the investigation. The object of the work was a determination of the duty of water in several irrigated valleys in Oregon, and was carried out along plans made by Don. H. Bark shortly before his resignation last June. If funds are available it is expected that the work will be continued this spring. Progress reports on duty of water work have also been received from C. G. Haskell, I.E., who had charge of the cooperative investigations in Nevada during the past season; J. T. Welch, Agent, in charge of the cooperation at Gooding, Idaho; and L. F. Gieseker, Collaborator, at Bozeman, Montana.

R. D. Robertson, I.E., is engaged in the Berkeley Office on a report of his field work in duty of water investigations in Sacramento Valley, Cal., during the past three seasons.

Pumping for Irrigation

On his return to the Arizona field following his conference in Washington, P. E. Fuller, I.E., stopped at South Bend, Indiana, to participate in a series of tests on the direct explosion pump adapted to wells. A report of these will be prepared by Mr. Fuller and submitted to the Washington Office.

Appliances and Equipment

S. T. Harding, I.E., and Wells A. Hutchins, A.I.E., completed field reports in January for the Berkeley Office on possible irrigation development about Madera, Cal., and hydraulic fills for canal crossings, respectively.

Flow of Water

The report of F. C. Scobey, I.E., on the carrying capacity of wood stave pipes has been submitted to a number of well known hydraulic engineers outside of the Department for criticism before publication, owing to the fact that the formulas derived by Mr. Scobey as a result of his investigations differ radically from those heretofore in use. It is anticipated that the bulletin will be published early in the spring.

Measurement of Water

The Field Letter of some few months ago contained an item concerning the so-called Venturi flume which has been developed in the Hydraulic Laboratory at Fort Collins, to meet the demand for a measuring device which will be inexpensive, accurate, free from sand, silt, and floating trash, and require little or no loss of head. Some few field tests of this device made during the past season in different parts of the West, indicate that this is practically accomplished by the Venturi flume. In addition to the Venturi flume of rectangular cross section, there has been developed a combination of the Venturi flume and triangular notch having for its purpose the measurement of small quantities of water. The V-notch Venturi Flume has been calibrated and various experiments carried out which indicate its reliability and reasonable accuracy. Some field tests made in addition to the calibration experiments indicate its practicability, and it seems safe to predict at this time that it will go a long way toward solving the measurement of

water on individual deliveries. The calibration was carried from .1 of a second-foot to approximately 4 second-feet. Economy and simplicity of the structure are its favorable features.

A paper by V. M. Cone, I.E., descriptive of the new weir without bottom contractions, devised at the Fort Collins laboratory, has been sent to the Journal of Agricultural Research for early publication following the appearance in one of the March numbers of Mr. Cone's paper on weirs with full contractions, referred to in previous numbers of the Field-Letter.

Customs, Regulations, and Laws

The report by Frank Adams on Irrigation Districts in California, mentioned in the November letter, is being published by the State Engineer of California and will be distributed shortly. Employees of the Irrigation Division have been listed to receive copies of this upon publication.

R. P. Teele, Irrigation Economist, has just published, through D. Appleton and Company, of New York, a book on Irrigation in the United States. This is devoted chiefly to a discussion of irrigation laws, water rights, securities, organization, and finance, based on Mr. Teele's long service in the Department as special agent in charge of the Census of Irrigation of 1910, conducted by the Bureau of the Census.

DIVISION OF DRAINAGE INVESTIGATIONS
S. H. McCrory, Chief.

Projects:

Administration

An address on the organization and financing of drainage projects was delivered on January 5 by S. H. McCrory before the Public Winter Meeting of the State Board of Agriculture of Massachusetts held at Boston.

On January 10, S. H. McCrory left Washington to inspect the experimental farm of the Coast Experiment Station of Clemson College, South Carolina, located at Drainland. He also called upon J. V. Phillips, D.E., at Frogmore, S. C., and made an inspection of the St. Helena Island project; then called on F. G. Eason, D.E., at Yemassee, S. C., where an inspection was made of the Buckfield Lodge project.

On January 24, H. M. Lynde, D.E., visited Washington for a conference in regard to the work in North Carolina.

On January 8, F. R. Baker, A.D.E. in the North Carolina Department of Agriculture, arrived in Washington for a conference in regard to the preparation of his bulletin on terracing.

G. A. Hart, J.D.E., has been transferred from the Salt Lake City office to Denver, Colorado, where he will have his permanent headquarters in the future.

Quincy C. Ayres and Harry S. Andrews have been appointed Junior Drainage Engineers.

Farm Drainage

Between January 1 and 15, O. G. Baxter, D.E., was working on some tile projects in the vicinities of Bay City and Sherman, Texas, in connection with his investigations on the Colorado River. On January 17-19, he made a survey for a proposed tile drainage survey on the farm of Dr. W. L. McWilliams, Narcissa, Oklahoma.

The construction work on the tile drainage system on the Dr. Griffin W. Holland farm, Eastville, Virginia, which was superintended by J. R. Haswell, D.E., has been completed. About $4\frac{3}{4}$ miles of tile drains have been installed on this farm. On January 21, Mr. Haswell led a discussion on drainage at a meeting of County Agents at the Agricultural Experiment Station, College Park, Maryland.

In connection with other work in North Carolina during the month, H. M. Lynde, S.D.E., was engaged on a number of tile projects in that State.

On January 9, J. V. Phillips, D.E., left Washington for Frogmore, S. C., for the purpose of making an inspection on the farm lands on St. Helena Island and giving advice as to the improvement of the ditches on this Island.

January 26-28, C. E. Ramser, D.E., made an investigation of terraces on the State Experiment Station farm at Holly Springs, Mississippi, during a heavy rain. He also visited the farm of Turner Clark, $2\frac{1}{2}$ miles south of Tupelo, Miss., to ascertain the cause of breaks in the terraces by recent heavy rains.

On January 8, Fred F. Shafer, D.E., addressed the class of agricultural economics at the Kentucky State University, Lexington, on drainage. On January 12 he discussed drainage in West Virginia at a meeting of County Agents of West Virginia at Morgantown.

On January 25, J. V. Phillips, D.E., addressed a meeting of County Agents of Georgia at the State Agricultural College, Athens, Georgia, on the drainage work of this Office.

Reports Transmitted:

D-4 Gam Farm, St. Georges, Del., by J. R. Haswell.
D-4 Smith Farm, Porters, Newcastle Co., Del., by J. R. Haswell.
D-7 Hissam Farm, Tyler Co., W. Va., by F. F. Shafer.
D-7 Everett Farm, Ona, W. Va., by F. F. Shafer.
D-7 Wigal Farm, Bellville, W. Va., by F. F. Shafer.
D-7 Polk Farm, Sophia, W. Va., by F. F. Shafer.
D-7 Ensign Farm, Huntington, W. Va., by F. F. Shafer.
D-7 Clay Farm, Marshes, W. Va., by F. F. Shafer.
D-7 Levi Farm, Charleston, W. Va., by F. F. Shafer.
D-8 Ingram Farm, Anson Co., N. C., by F. R. Baker*
D-8 Blalock Farm, Wadesboro, N. C., by F. R. Baker.
D-24 King Farm, Wofford, Ky., by F. F. Shafer.
D-24 Rose Farm, Williamsburg, Ky., by F. F. Shafer.
D-24 Davis Farm, Williamsburg, Ky., by F. F. Shafer.

*Assistant Drainage Engineer furnished by North Carolina Department of Agriculture.

Reports Received:

D-6 Kean Farm, Vigor, Va., by F. F. Shafer.

Overflowed Lands

January 3-24, F. G. Eason, D.E., assisted by Quincy C. Ayres, J.D.E., made a survey of Buckfield Lodge, near Yemassee, S. C. During the remainder of the month, Mr. Eason was engaged on the report of this project at Charleston, S. C.

On January 18, J. V. Phillips, D.E., commenced a survey of Rose Creek, Oconee County, Ga. On the completion of the Buckfield Lodge survey, Quincy C. Ayres, J.D.E., proceeded to Watkinsville, Ga., and will assist Mr. Phillips on the Rose Creek survey.

O. G. Baxter, D.E., completed the work of securing field data on the Colorado River, Texas, on January 15. During the latter part of the month, he was at Little Rock, Ark., preparing his report.

On January 12, L. A. Jones, S.D.E., left Montgomery, Ala., and proceeded to Corinth, Miss., where he made an examination of the river bottoms in the Tuscumbia Drainage District and interviewed land owners and other interested parties to ascertain the results secured by the construction of drains during the past season. He then proceeded to Osceola and Blytheville, Ark., where he made an inspection of Drainage District No. 9, Mississippi County, and Carrollton, Missouri, for the purpose of making a preliminary examination of the proposed Sugar Tree Levee Drainage District. On his trip to Washington, Mr. Jones attended the National Drainage Congress held at Cairo, Illinois, January 19-21.

January 24-26, C. E. Ramser, D.E., was at Tupelo and Shannon, Miss., securing information relative to overflows of Old Town, Chawappah, and Connewah Creeks, and the damage to crops by the overflows.

Reports Transmitted:

D-6 Bush River, Prince Edward Co., Va., by D. L. Yarnell.
D-8X Sandy Run Creek, Cleveland and Rutherford Cos., N. C., by F. R. Baker.
D-9 Marshall Bottoms on Wilson Creek, Greenwood Co., S. C., by F. G. Eason.
D-9V Combahee Corporation Lands, Colleton Co., S. C., by C. W. Okey and F. G. Eason.

Irrigated Lands

On January 26, D. G. Miller, S.D.E., and Guy A. Hart, J.D.E., left Denver, Colo., for Shiprock, N. M., for the purpose of making an investigation in regard to the drainage problems on the farm of the San Juan Indian School.

During the month, addresses were delivered before short courses at Agricultural Colleges by R. A. Hart, S.D.E., at several places in Utah, Idaho, Oregon, and Washington, and by D. G. Miller, S.D.E., at points in Colorado, and New Mexico.

Surveys and investigations were made on several irrigated projects in Utah by W. N. Hall, D.E.

L. T. Jessup, J.D.E., arrived in Denver, Colo, on January 12 to prepare his report upon the Hershey Drainage District, Nebraska.

Reports Transmitted:

D-39A Thurgood-Flint Tract, Syracuse, Utah, by W. N. Hall.
D-43 Marin Meadows Ranch, Ignacio, Martin Co., Cal., by W. W. Weir.
D-43 Live Oak, Sutter Co., Cal., by W. W. Weir.
D-43 Zeller-Bulson-Houdeshel Tract, Napa Co., Cal., by W. W. Weir.

Run-Off Investigations

C. E. Ramser, D.E., arrived at Jackson, Tenn., January 17 for the purpose of securing run-off data in several counties in Western Tennessee. Harry S. Andrews, reported to Mr. Ramser at Jackson to continue these investigations.

On January 6, J. G. Bennett, Levelman, arrived at New Orleans, La., to prepare his report, in cooperation with C. W. Okey, S.D.E., on the run-off investigations which he made in Florida.

Reports Received:

D-41I Granger Drainage District No. 2, Yakima Co., Wash. (Progress Report) by W. A. Kelly.

Swamp Lands

H. M. Lynde, S.D.E., made a preliminary examination of Caw Caw Swamp, Brunswick Co., N. C.

Reports Transmitted:

D-29 Drainage District No. 9, Mississippi Co., Ark., by O. G. Baxter.

Peat and Muck Lands

On January 13, C. W. Okey, S.D.E., left New Orleans, La., for Fort Pierce and other points in Florida for the purpose of inspecting the work now being carried on by Mr. Staebner and to start new work in connection with the peat and muck investigations now under way in that State.

Organization, Financing, and Legal Regulations of Drainage Districts.

On January 16, H. S. Yohe, Expert on Drainage Organization, left Washington for Lumberton, N.C., to investigate the methods of financing the Back and Jacob Swamp Drainage District; then proceeded to Shelby, N.C., to secure similar data in regard to the financing of the Buffalo Creek Drainage District; then to Greenville and Cleveland, Miss., for the purpose of obtaining all available information regarding the Bogue Phalia Drainage District in Washington Co., Miss., where work is now under construction. He also called upon Judge G. B. Rose, an attorney at Little Rock, Ark., who has a wide experience with drainage projects in the South, and conferred with him in regard to legal phases of district organization and the Arkansas drainage law.

Delayed Report on National Forest Roads

District 4. C. H. Kendall, S.H.E., in charge.

In Idaho the erection of the 65-ft. steel bridge across the Deadwood River on the Payette River Road was completed the 22nd. A small crew of rangers are working upon a section of rock grade near the Oxbow.

Upon the Secret Pass Road, Ruby National Forest, it has been necessary to suspend the work owing to the excessive depth of snow. There remains about 700 cu. yds. of rock ledge to excavate in a distance of 1,000 ft. before the road is completed.

In the Kaibab National Forest, Arizona, a small crew of men are working upon the repairs of the Jump-Up Road.

In Utah work has been begun upon the section of the Ephraim-Orangeville Road, known as Straight Canyon, in the Manti National Forest. A survey party is now cross-sectioning the rock work, and a force of rangers is employed upon the rock excavation. An allotment of $2,000 has been made for the improvement of this section of the project. The entire project of 33 miles is one of cooperation with the State and two Counties.

An illustrated address upon road construction was given at Monroe, Utah, on January 13, the occasion being the Sevier County "Farmers' Round-up." January 15 to 20, a conference was held at Missoula, Montana, with the District Highway Engineer of District 1, regarding Idaho projects and cooperation with the State upon a general Road Program.

In the office maps are being plotted of the location surveys made during the summer.

Severe winter weather and an excessive fall of snow has been general throughout the District during the month.